JULY, MDCCCLVI.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CLXV.

LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

Price ONE SHILLING.

E. NEWMAN, 9, DEVONSHIRE STREET.

The Aquarium—Marine and Fresh-Water.

THE LARGEST, BEST, AND MOST VARIED SALE-STOC
IN THE WORLD OF LIVING MARINE ANIMALS AND SEA-WEED
comprising upwards of TEN THOUSAND SPECIMENS, including TWO HU
DRED SPECIES, exclusively contributed from the richest spots of the British coa
thoroughly acclimated in THIRTY LARGE PLATE GLASS TANKS, aggregati
EIGHT HUNDRED GALLONS OF SEA WATER.—W. Alford Lloyd has remov
from St. John-Street Road, and has entered into the very extensive arrangements
above indicated. A detailed list on application. Every variety of the requisite app
ratus. All the books on the subject. The most delicate organizations packed to
any distance. A long course of experiments has at length so perfected ARTIFICIA
SEA WATER that it is analytically correct and answers every purpose. Sole Age
for the celebrated Tanks of Sanders and Woolcott, and at the same prices.

W. ALFORD LLOYD, 19 and 20, Portland Road, Regent's Park, London.

GEORGE KNIGHT & CO.,

FOSTER LANE, LONDON,

MANUFACTURERS OF

Chemical Apparatus, Geological and Mineralogical Instruments, &c.

Respectfully inform Entomologists that they manufacture all descriptions of Nets an
other requisites for collecting and preserving Insects, of the best quality, and at the mos
reasonable prices. A Priced List forwarded free on receipt of a Card of Address.

intimate acquaintance with the economy of this Papilio. I have no doubt respecting the following account: the eggs are laid in succession from the middle of April to the end of June, but the larger portion during the months of April and May; the larva may be found during the whole of the months of May, June and July: a fine specimen of he perfect insect appears at the end of July, but the greater number during the month f August, then (or many of them at least) live till the following spring, and deposit heir eggs on the buds and terminal shoots of Rhamnus frangula, so that it is clear the erfect insect occasionally lives a twelve-month; the females have at the present time ell developed eggs within them."

Mr. Douglas read a paper, by Mr. Adam White, entitled "Descriptions of an aparently Nondescript Species of Necrodes, from Borneo, with brief descriptions of three ther species from Northern China and India."

Mr. Smith read a paper entitled "Observations on the Difficulties attending the iscrimination of the Species of the Genus Stylops," in which he stated that all parts f the body of the male Stylops are of so soft and delicate a nature, that in a few hours fter death the entire appearance of the insect is changed, becoming a mere shrivelled ass, and in consequence nearly all the published figures of these insects, having been rawn from cabinet specimens, are mere "miserable caricatures:" he expressed his pinion that it may hereafter appear that we have but one species of Stylops in this ountry.

Mr. Westwood thought Mr. Smith's strictures on the published figures of Stylops ather too severe; he might at least have made an exception in favour of his (Mr. Vestwood's) figures of Stylops Spencei in the third volume of the 'Transactions,' which ere drawn from the living insect.

Mr. Douglas read from Guérin's 'Revue de Zoologie,' for December last, the folowing part of a communication made to the Editor by Dr. Richard:—

Epeira Senegalensis.

"The spiders upon which I experimented were taken on a Baobab tree placed in he courts of Gorée, where there was a deal of noise: their number on the tree is such hat they are seen from afar when the tree is stripped of its leaves; they appear to live y preference near inhabited places, either, as I have reason to believe, because they ike noise, or, more probably, they are kept near to man by the abundance of the inects on which they prey, and which are attracted by the *débris* of human aliments: oreover, it is an extraordinary fact that they persist in remaining upon this Baobab, otwithstanding they may be constantly disturbed by the blacks who collect its leaves *aloo*) for couscous.* This spider neither stings nor bites: it is only when pressed by unger that it is disposed to take the flies that are given to it; it swallows them body nd wings entire; one of those that I reared swallowed three of them consecutively in

---

* The leaves of the Baobab are emollient, as in the greater part of the Malvaceæ, o which Order this king of vegetables belongs: they are used in medicine under the ame of *aloo*, and the blacks make use of them in the preparation of couscous, to hich they add a certain *goût*, and especially the property of gliding more easily, by etting their mucilage at liberty.

BRITISH MUSEUM

less than five minutes, (it had been starved several times): it required some time to teach them to take the living flies that I presented to them on the end of a cleft stick, and to acquire the dexterity of disengaging them without breaking: when at liberty they rush upon the flies caught in their nets, and if they are eatable they carry them to one part of their web where they unite together in enlacing them with their threads. I have made some experiments upon the limit of fasting among these creatures, in order to see if I might hope to transmit them alive to France. Contrary to my expectation, and to the habits of hunting animals, the spiders experimented upon were unable to scize a fly after the fourth day: one of them was put upon the balcony of the house I live in, but its weakness was so great that it could no longer use its feet; thus I left it, hanging by one of its hinder feet: I do not know if it found upon its thread a prey more appropriate to its feeble state than flies, but it recovered and spun its web at the place in which I had put it. I followed with interest the fabrication of this web; I saw that at first the silk was more viscid, dried less readily, was consequently more liable to be soiled, and was lighter coloured than the silk spun at a later period. I studied their movements in order to endeavour to discover in the secret of the web the means of winding off the thread: the large size of the silk, and a ray of the sun, permitted me to follow at a distance this interesting work, but the spider became lost to view when it passed behind the pillars of the balcony, and these interruptions overcame my patience. I learned, however, that it always rests on the same side of the web, and that the latter is composed of two parallel cables formed of several threads (eight or ten), not adhering to each other: these cables serve as a support to a light net-work, as in the web of our river spiders. I remarked that in its work the spider uses its hinder feet in the same manner that the thread-maker and spinner use their fingers; it draws them alternately over the thread which it makes, in order to give it regularity, whilst its fore feet serve to move its body upon the threads already dry. The cocoon was made in a very few days in the month of August: looking at it in the month of January I found two very little spiders, which had very large bodies, and very short and slender feet. I think that it would not be difficult to transport these spiders in such condition that it would be possible to wind off their silk; but even when this result could not be attained absolutely, or within such limits of cost as industrial application admits, it is probable that commerce could use profitably a substance so resistant as this silk, spun like waste silk, and to obtain which all the labour required at the places of its production consists in a simple gathering unattended with danger. Industry, maritime especially, requires a thread which has the qualities of silk, great tenacity within a small compass, less alterable by atmospheric agencies and humidity than vegetable cords, and of which the price would not exceed the requirements of its utility. The spider's silk can be used to supply this want, inasmuch as all hot countries would very soon furnish an important quantity of the rough produce for the requirements of this new industry. We should remember, in this expectation, the predilection of the spider for inhabited places, and its harmlessness to the trees where it establishes itself. Besides, its enemies, the musquitoes and flies, are also ours, and it is in order to free us from them that it loves to be in our neighbourhood, which is shunned by other animals in a state of nature. This consideration is not so trifling as might be thought: the spiders distributed among the ornamental trees that surround habitations would do much to abate this nuisance in hot and moist countries. M. Margain put a spider upon a young Baobab in his court-yard, and he could tell you the result of this experiment. The silk of the cocoon, by its durability and the brightness of its pale colour, might be employed in fabricating peculiar ornamental stuff, which would be difficult to imitate: the winding off would not be difficult, since the smallness of the meshes of the net-work that it forms is opposed to that in which the spider has been able to entangle its threads in passing to the centre. If the Epeira is reared in sight of the cocoon it will compensate for the drawbacks of a small yield, the space occupied, and the special difficulties of winding, by the beauty of the produce, the quickness of realisation (three or four days), and the absence of care and food during the continuance of the work. The silk of the spider of Gabon excels that of Senegal by the beauty of its deeper colour and by its elasticity, which are in harmony with the frequency and force of the rains of the country. I steeped a piece of the sample I collected in a concentrated solution of azotic acid, without the consistency or the colour being altered: I have not found this spider in society, but it is in the neighbourhood of man, in the garden of M. Reston, an American Missionary, at Bakélé, that I gathered the sample in question."—*J. W. D.*

June 2, 1856.—W. Wilson Saunders, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'An Introduction to Entomology, or Elements of the Natural History of Insects,' by the Rev. William Kirby, M.A., F.R.S., &c., and William Spence, Esq., F.R.S., &c., 7th edition; presented by W. Spence, Esq., F.R.S., F.L.S., &c. 'On the Variation of Species with especial reference to the Insecta, followed by an Inquiry into the Nature of Genera,' by T. Vernon Wollaston, M.A., F.L.S.; by the Author. 'A Natural History of the Animal Kingdom, being a Systematic and Popular Description of the Habits, Structure and Classification of Animals,' by W. S. Dallas, Esq., F.L.S., &c.; by the Author. 'Third Report of the Commissioners for the Exhibition of 1851;' by Her Majesty's Commissioners. 'Proceedings of the Royal Society,' Vol. viii. No. 20; by the Society. 'Revue et Magasin de Zoologie,' 1856, No. 4; by the Editor, M. Guérin-Méneville. 'The Zoologist' for June; by the Editor. 'The Journal of the Society of Arts' for May; by the Society. 'The Literary Gazette' for May; by the Editor. 'Entomologiska Anteckningar under en Resa i Södra Soerige ar 1854,' af Ang. Emil Holmaren; by the Author. 'The Entomologist's Weekly Intelligencer,' Nos. 6, 7, 8 and 9; by the Editor, H. T. Stainton, Esq. 'A Manual of British Butterflies and Moths,' No. 4, by H. T. Stainton; by the Author. 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum,' Part VII. Lepidoptera Heterocera; by the Author, Francis Walker, Esq., F.L.S.

Resignation of Officers.

The President announced that in consequence of the resignation of Mr. Pascoe, as a member of the Council of the Society, and of Mr. Douglas, of the office of Secretary, the Council, in conformity with the By-laws, recommended Mr. Janson to fill both vacancies, and that the ordinary meeting in July next would be made special for the purposes of the election.

Exhibitions.

Mr. Bond exhibited a specimen of Biston hirtarius, having the wings and abdomen of the female, but the antennæ were both deeply pectinated, that on the right side as much so as in the male insect: this singular monstrosity was taken by Mr. Mitford in the Regent's Park, in April last.

Mr. S. Stevens exhibited recently hatched larvæ of Petasia nubeculosa, Notodonta carmelita and N. dictæoides, the first-named species from eggs sent from Perthshire by Mr. Foxcroft, the others from eggs laid by specimens taken by Mr. Stevens at Addington Park during the past month.

Mr. S. Stevens also exhibited a box of insects lately sent home by Mr. Bates from Ega, Upper Amazons, containing, amongst other fine species, Papilio Pausanias, Callithea Batesii and Hætera Andromeda, also Megacephala Klugii and Megacephala n. s., together with a remarkable species of Cicada.

Mr. Douglas exhibited Cryptocephalus Coryli, taken at West Wickham Wood, May 29th; also Lebia Crux-minor, taken by Mr. Hemmings at Holme Bush, near Brighton, May 25th; Endomychus coccineus, taken from a dead beech tree, by Mr. G. Harding, at Stapleton, near Bristol; and Platyrhinus latirostris and Biphyllus lunatus, from Fungi at the same place.

Mr. Douglas also exhibited the case-bearing larva of an apparently new species of Coleophora, found by Mr. Wailes, of Newcastle, feeding on Genista anglica.

Mr. F. Smith exhibited Platyrhinus latirostris, received from Mr. Foxcroft, in Perthshire, where it appeared to have been met with in abundance.

Mr. Westwood wished the Fungi in which this species was found to be examined for the larva, which is yet unknown.

Mr. Smith also read an extract from a letter received by him from a correspondent at Bristol, who stated that a London collector had recently taken five new species of bees in that neighbourhood, which he had sold for £1 each.

Mr. S. Stevens stated that he took a singular larva on Statice Limonium, at Sheerness, two years ago, which produced Agdistes Bennettii, *Curt.* On the 25th ult. he found four more nearly full-fed larvæ at the same place, and read the following description of the larva and pupa, of which he also exhibited a drawing:—

"*Larva* green, with two sharp projections on the head and one on the tail, of a pink colour. Feeds on Statice Limonium on the coast, and changes to pupa in May.

"*Pupa* of a dull lead-colour, attached to the plant; changes to imago in about three weeks."

Captain Cox stated that some time since he found a pupa, apparently of Smerinthus Tiliæ, in a cocoon formed of silk and particles of wood, under the loose bark of a plane tree, at a distance of about eight feet from the ground: from the fact of the pupa-case being much smoother than usual, and the above-mentioned singular deviation from the normal economy of this species, he had some doubts as to its identity until the perfect insect emerged.

Mr. Armitage exhibited a box of Coleoptera which he had recently taken in the South of France, containing, amongst other interesting species, Bolbocerus Gallicus and Callicnemis Latreillei.

The President exhibited some drawings of larvæ and pupæ of Lepidoptera, made in Natal by Mr. Plant, from which he had prepared Plates for publication in the 'Transactions: of one, a fine new species of Libesia, he read a description.

Mr. Adam White communicated descriptions of some apparently undescribed species of Homoptera, from Borneo and Celebes, with drawings of the insects.

Mr. Westwood read some notes on the wing-veins of insects, in which he opposed the views maintained by Mr. Newman on this subject in his paper read before the Society at the June meeting last year.

Some discussion took place on the subject, in which Captain Cox, Messrs. Waterhouse, Baly and others took part.

Field Excursion.

The President expressed his intention to invite the members of the Society to a field excursion at Reigate, during the present month.—*E. S.*

Origin of the name Horse-chestnut.—I beg very heartily to thank the Rev. J. Farr for the extremely interesting fact with which he has made me acquainted, of the singular resemblance to a horse's hoof in the young wood of the horse-chestnut,—a fact quite new to me, and I doubt not to many other readers of the 'Zoologist,' but which is clearly shown in the admirable sketch annexed. At the same time I trust that gentleman will not set me down as obstinate, and unwilling to be convinced, if I state that I still adhere to my former opinion of the origin of the name horse-chestnut, and that I regard the circumstance he describes as a somewhat remarkable coincidence indeed, but as in no degree influencing the specific name of the tree, which, without such adventitious circumstance, I contend would still be entitled to the prefix of 'horse,' in accordance with general custom, to mark its preeminence in size amongst its congeners. Moreover, had the resemblance to a horse's hoof in the joint of the young wood given a specific name to the tree, would it not rather have been designated by our forefathers the 'horse-hoof' chestnut, instead of the horse-chestnut? And again, if this be the true solution of the question regarding the origin of the name, how shall we account for the terms *horse*-leech, *horse*-radish, *horse*-mackerel, *horse*-mushroom, &c., &c.? all of which, though varying so much from one another in nature, exceed their respective congeners in size, and partake of the same specific name, which I humbly submit should bear such an interpretatation as is applicable to all. For my own part, I still conceive that this prefix, like others mentioned in my paper (Zool. 5057), denotes size and coarseness, and on this account was given to the coarser species of chestnut; while the curious pattern of a horse's hoof contained in its wood, and the food provided for horses in Turkey by its fruit (as mentioned by Mr. Hussey, and an equally undoubted fact), are coincidences, but nothing more. I may add, in support of my argument, that, in this neighbourhood at least (I know not if the habit exists elsewhere), our villagers apply the term 'horse' to many things to which it does not legitimately belong, if we are guided by dictionaries, using it as an adjective, and intending it to signify bulk or coarseness.—*Alfred Charles Smith; Yatesbury Rectory, Calne, May* 28, 1856.

Amours of the Hedgehog (Erinaceus Europæus).—I was strolling a few evenings since, in the twilight, by the side of a coppice adjoining Cokethorpe Park, when sundry strange sounds were heard to proceed from some animal just inside the coppice. I should not readily have divined the cause of these sounds, by what kind of creature they were emitted, nor what was the occasion that called them forth, had not the gamekeeper given me an inkling of the matter from what he had himself witnessed last summer. By the information I obtained from him I was enabled pretty clearly to comprehend the nature of the present case. I judged that the sounds in question proceeded from an amorously-inclined hedgehog; and, wishing to ascertain whether the proceedings of the parties in this case agreed with those he had described to me, I crept softly through the hedge, and cautiously approached the spot from whence the sounds appeared to proceed. A few steps brought me near enough the objects of my curiosity to observe distinctly all that passed between the pair; and their manœuvres, which I shall endeavour faithfully to describe, I found agreed in almost every particular with those previously observed by Jones (the gamekeeper). A circle of about two feet diameter had been formed by the male, round which he was pacing, and giving constant utterance to the sounds which drew me to the spot. Though I can imitate these sounds with tolerable accuracy, I cannot so well describe them upon paper; suffice it to say they differed but little, except in volume, with those puffing, panting sounds which greet the ears of railway travellers when a train is put in motion, and were given off at the rate of about 120 per minute, or two in each second. In the centre of the circle, and of course forming the point of attraction, was the female; and as the male moved round the circle he had formed, she kept turning round, as a wheel placed horizontally is made to revolve upon its axis, by which movement she was enabled to have her eye constantly upon him, and so with most commendable prudence to guard herself against the possibility of a "surprise." Would that all females were equally prudent! At intervals the male would make an advance toward the centre both of the circle and of his hopes, but every time he did so he appeared to be met with an unmistakeable "Now do be quiet," "Don't be rude," "Keep your distance," "Don't you think it," "I won't allow it," &c. &c. Occasionally the female would steal out of the ring, and slip away for a couple of yards or so, always in the same direction, but as often as she left "the magic circle" some irresistible power seemed to draw her back again to it, so true it is that

> "Love rules the camp, the court, the grove,
> And men"—*and women too* by Jove!

Its sway is universal; the high and the lofty, the lowly and the mean, every living creature acknowledges its power, all yield willing obedience to its dictates, all readily submit themselves to be bound in its fetters. It was, moreover, observable how that—each time the female quitted the circle—the male at once paused in his rounds, and discontinued the sounds to which he had been giving utterance, till her return, when both sounds and motion were immediately resumed. Love, they say, is blind; and certainly it, or something else, caused the sense not only of sight, but of smell, in this pair to be remarkably obtuse, for I had been standing for nearly an hour, during which time the exhibition I have described was going on, so near them that with two short strides I could have placed my foot in the very centre of the circle without their being apparently at all aware of my proximity. However, at length the female did somehow become aware of the presence of a third, and consequently an unwelcome party, for she suddenly made straight towards me, and, coming close up, applied her nose to my boot, and then, satisfied that there existed real ground for alarm, made off into the depths of the covert with all possible haste, leaving her disappointed lover to console himself as he best might. He no doubt was soon again upon her track, or she had returned to him, but the increasing darkness rendered further observation on my part impossible. Had it been a light night instead of a dark one, I might perhaps have been in a position to enlighten such of the readers of the 'Zoologist' as required enlightenment upon the point as to the amount of "delicate attentions" a female hedgehog expects before she deigns to bestow her favours,—how much perseverance is necessary, and how great an amount of coaxing and cajoling it is requisite to use before her scruples are removed and she becomes "nothing loath;" but, owing to the abrupt termination of the "interview," I am unable at present to say whether the process of gaining a hedgehog wife be a long, slow and tedious one, as was the late siege of Sebastopol, or not: judging, however, from the fact that little or no progress appeared to be made during the period I watched the pair,—that at the end of an hour's assiduous attention the wooer appeared to be as far from having his desires gratified as at the beginning,—we may safely conclude it to be an exceedingly "slow affair."—*S. Stone; May* 12, 1856.

Occurrence of the Little Owl (Strix passerina) *at Maidstone.*—A fine specimen of the little owl was lately taken in the neighbourhood of Maidstone, alive, and is so now in my possession: it being a *rara avis*, I thought it would be interesting to ornithologists.—*Whitmore Baker; Maidstone, Kent, May*, 1856.

Rare Birds procured in Norfolk and Suffolk.—Early in May, 1856, a male bluethroated warbler was killed near Lowestoft. About the middle of May a pair of golden orioles were killed at Lakenham, near Norwich. About the end of May a male specimen of the broadbilled sandpiper, in breeding plumage, was killed near Yarmouth. —*J. H. Gurney; Catton Hall, Norfolk, June* 12, 1856.

Remarkable Destruction of Sea Birds on the Norfolk Coast.—On the morning of Sunday, May 11th (after some severe north-east gales), a very large number of seabirds, recently dead, were observed on the beach in the neighbourhood of Cromer, Norfolk: they were washed up, mixed with sea-weed, and were found lying near the edge of the water in considerable numbers, so much so that a lady counted 240 in the space of not more than two miles: many were gathered for manure, one man collecting four cart-loads, partly composed of sea-weed, but principally of dead birds. I have ascertained that they extended along the beach in the neighbourhood of Cromer for full six miles. I am also informed that many were washed up at Caister, near Yarmouth; and I have no doubt that others may have been found on other parts of the coast, respecting which no information has reached me. I have had some difficulty in ascertaining the exact species of the birds thus destroyed, but, as far as I can learn, they were chiefly foolish guillemots, intermingled with razorbills, puffins and gulls.—*Id.*

Crossbill breeding in the North of England.—The crossbill (*Loxia curvirostris*) has this spring been detected breeding on the banks of the Tyne, a nest, containing three eggs, having been found near Prudhoe.—*Thomas John Bold; Angas' Court, Bigg Market, Newcastle-on-Tyne, June* 10, 1856.

Golden Oriole near Norwich.—A pair of these beautiful birds were shot about the 11th of last month, at Lakenham. The male is in full rich adult plumage, having probably completed his third year.—*H. Stevenson; Norwich, June* 7, 1856.

Note on the Broadbilled Sandpiper in Norfolk.—A male of this very rare species was killed during last month at Yarmouth: the plumage is apparently in half change. —*Id.; June* 3, 1856.

Late Appearance of the Longtailed Duck and Common Scoter.—An adult male of the longtailed duck, in full summer plumage, was shot on Hickling Broad about the beginning of this month, the first instance I have yet met with of this bird being seen in Norfolk during the summer: the occurrence appears the more remarkable from this species not being numerous on this coast even in winter. Adult birds appear only in very sharp weather. I have just seen in the flesh another adult male of the common scoter, shot on the 11th, at Scotton, where for some days it had frequented a piece of ornamental water.—*Id.; June* 12, 1856.

Note on Savi's Warbler and on a Variety of the Grasshopper Warbler.—A male of this very rare species was shot on the 7th of this month, on the same Broad that has for the last three years afforded me specimens of the grasshopper warbler. The last occurrence of this bird in Norfolk that I am aware of was in 1843, when a pair were killed at South Walsham, one of which is now in the Norwich Museum, together with a specimen taken fifty years ago, the first ever known to have occurred in this county. Although much resembling the reed warbler, this species may be at once distinguished by its larger size and darker feathers on the under parts. I also observe, in this specimen, a number of minute brown spots on the throat, a peculiarity which I have found to distinguish more or less all males of the grasshopper warbler, being perceptible even in a bird of the year. The note of the Savi's warbler has been said to resemble that of the grasshopper warbler, and I may here add that the bird in question was mistaken, by its "creaking noise," for one of the more numerous species. Since writing the above I have received a male specimen of the grasshopper warbler which differs from the general plumage in having a yellow tinge all over the under parts, somewhat resembling the willow wren, whilst the back and wings are also brighter. Out of many specimens I have only once before met with this variety, as in this instance a male bird, somewhat under the usual size. I am at a loss to determine whether this is simply a variety or a plumage peculiar to a certain age.—*Id.; June* 14, 1856.

Occurrence of the Black Stork in Kent.—Being at Lydd, in Kent, on the 21st of May, I saw at the shop of a bird-preserver there, of the name of George Gell, a fine specimen of the black stork, which had been killed, on or about May 5th, at a place called Fairfield Brae, near Brewnet, and but a few miles from Lydd. The account which he gave me of the capture of the bird was the following:—Two labourers had noticed what they supposed to be a very big heron about a certain spot for three weeks: at last one said to the other, "Heron makes an uncommon pudding, let us try to shoot it." The attempt was made and the bird shot, and forwarded by the person into whose hands it fell to Mr. Gell to preserve. The plumage of the bird was very bright, and there were no signs about it of its ever having been in confinement.—*R. N. Dennis; 11, Penrose Terrace, Penzance, Cornwall, May* 30, 1856.

Remarks on Anacharis Alsinastrum as a Food for Swans, and an obstruction to the Free Migration of Salmon. By JOHN J. BRIGGS, Esq.

THE rapidity of growth which this plant exhibits is very extraordinary. The flood which occurred upon the Trent, between Swarkeston Bridge and Weston Cliff, caused by the breaking up of the great frost in February, 1855, cleared the river of this weed, leaving only the roots. These soon sprouted again, and now it is as plentiful as ever. Immense masses disfigure the shallows, and cover the beds of the deeps. I notice that the plant, when propagating in the river, strikes its shoots in a lateral direction, underneath the mud, six inches or a foot from the parent plant, peeps to the surface of the mud, and then spreads rapidly. The manner in which the plant is introduced into new localities is most difficult to explain: some persons imagine that it is spread by wild-fowl which probably feed upon it, the seeds passing undigested through the stomach. But a few years ago it was scarcely noticed in the Trent, and now it exists in the Derwent, as well as in most of the canals and still waters of Derbyshire.

The plant I believe only attracted notice in 1842, and yet I am assured by two gardeners, who have a good knowledge of plants, that they knew it well more than thirty years ago. That they made no mistake in the species I proved beyond question, and yet if the weed has existed in this country for so long a period it seems almost impossible that it should have escaped the notice of our botanists until 1842, and spread with such rapidity since.

The fondness of swans for this plant was noticed at Dunse Castle, where they cleared the lake of every particle of it, and then died off to the original pair. An additional proof of their partiality to it may be gathered from the following circumstance. Some time during last year the plant found its way into the mill-dam at Calke (Derbyshire), from which a small stream (perhaps two miles long) runs into Melbourne Pool: the swans on the pool, having at that time none of this weed in their own water, swam on one occasion a certain distance up the stream (towards Calke Mill), in which some small patches of the weed had gained a settlement: the circumstance of their finding it gradually led them on until they reached the mill-dam, and, finding an abundance of the weed there, they did not endeavour to return to their own pool, but remained for many weeks feeding upon the weed: during their stay the new pest decreased rapidly.

Mr. Barron kindly informs me that the Anacharis has been in the lake at Elvaston Castle for more than a dozen years, having been introduced into it by the river Derwent, whose waters supply the lake. It was very troublesome for some years, but is now kept under by having the lake laid dry for a few days during a sharp frost, and again during hot dry weather. A hot sun with a drying wind will kill it to the ground, and if the ground or bottom of the lake be tolerably clean then a sharp frost destroys the roots. It is considered rather unfavourable to fish. In the lake at Elvaston it has not flowered.

At Newark-upon-Trent the Anacharis appears to have attracted attention about six years ago; it was, I believe, first perceptible in the piece of water called "Newark Dyke," which communicates with the Trent.

The following facts may perhaps interest. During the proper season a considerable number of salmon ascend the river Trent from the sea to spawn, and have been taken, under particular regulations, at Newark, Shardlowe, King's Mills, &c. During the last few years scarcely a salmon has been taken at King's Mills, and the park-keeper of the Hastings family (to whom the fishery belongs) thought that some unfair means must have been resorted to, lower down the river towards the sea, to prevent the salmon from ascending. In August last he went to Newark to examine the weirs and nets, but he found that the fishery laws had not been transgressed: he found, however, that the new weed had accumulated in many parts to so great an extent as to produce a general impression amongst those connected with the different fisheries that it prevented the free ascent of the salmon up the river as in former years.

It appears that this persevering weed has located itself in rather a singular situation, viz., the water-tank at the Newark Railway Station. The tank is supplied with water from "Newark Dyke," through pipes 200 or 300 yards in length, which discharge their contents into a well, from which they are raised by steam into the tank. The weed has found its way with the water and gained a firm footing on the bottom, and has become very troublesome. When the tank is cleaned out, again comes the pertinacious stranger and speedily covers the bottom, perhaps a foot thick.

I learn from a Berkshire friend that he first met with this plant near Sonning, three miles from Reading, but has since seen it close to that town, covering the bottoms of the ditches, and *in flower*.

In February, 1855, I had the pleasure of presenting the Society of Natural Sciences of the Canton of Vaud with specimens of the Anacharis procured from the river Trent, and also some account of its history in this country. Amongst other observations which they elicited from the members, Mr. C. Gaudin remarked that "until recently the plant has only flourished in tranquil places, and that it has only produced *female* flowers." He adds "Elle appartient à la famille des Hydrocharidées, dont nous avons un représentant dans les pays, l'Hydrocharis Morsus-Ranæ des marais de l'Orbe. Richard a décrit dans les Mémoires de l'Institut de 1811, une Anacharis originaire de Monte Video, et dont on ne connaissait que les *fleurs males*. Il parait qu'on n'en connaissait pas d'autre, car Endlicher n'en fait aucune mention dans son ouvrage qui a paru en 1841, un an avant l'apparition de la nouvelle Anacharis." Mr. Gaudin adds "It would be worth while to examine if it would be useful to introduce it in our own lake, for facilitating there the trials in pisciculture with which Dr. Chavannes is occupied at this moment. Our lake contains much less fish than the other lakes of Switzerland, because it has not sufficient aquatic plants to furnish to the young fish a shelter from their enemies. There are no places of refuge to protect them against the fishermen, the large fish, storms, &c. It is probable that this plant would also serve for food to different species." *

JOHN JOSEPH BRIGGS.

King's Newton, Swarkeston, Derbyshire,
June, 1856.

Further Results of the Artificial Breeding of Salmon at the Stormontfield Pond. —On Saturday last, in company with two friends, I was present at the emptying of Stormontfield salmon-rearing pond. The keeper having reported to Mr. Buist that the smolts had nearly all left — the pond being now required for the fry hatched this spring, as they are leaving the hatching-boxes in thousands, and will soon require to be fed—we promised ourselves a great treat, as we were anxious to see what the pond contained, after so many thousands had left it both this spring and last. The pond is emptied by opening a pipe which is placed at the deepest corner, which pipe is taken under ground to within a few yards of the river, which was the height of the Tay in relation to this pipe on Saturday last, the water being discharged on a smooth grassy bank. A wire riddle was put into the centre of the flow, supported on both sides with turf, which caused the water to spread on either side, and sent it thinly and wide-spread over the grass, by which means every fish that left the pond could be seen and counted, and the smolts arrested and marked by cutting off a corner from the tail. The pond is about four feet deep, and took five hours to run off. For the first hour very few fish made their appearance; but afterwards they came more frequently, and at the last they arrived so fast that a large tub had to be got so as to keep them till time could be had to mark them. Every one was counted as it made its appearance, and, on summing up, it was found that 335 smolts had been marked, and that 872 parrs had been turned into the river. Some of the smolts were as much as eight inches long. When the pond had nearly run dry, it became evident from his struggles that there was a larger fish in the pond than was suspected, and a hunt commenced for the intruder, when he turned out to be a river trout of a pound weight, and subsequently another was caught of similar weight, and two of about half a pound. How these fish got into the pond it is difficult to say; but during the intense frosts in winter the keeper had once or twice to allow the water to come from the lake direct, instead of through the filtering bed, which was frozen. Some small trout fry may by this means have got into the pond, and, from the good feeding, would grow very rapidly. They were splendid specimens of the native trout for shape and fatness. We cut up the whole, and found smolts in all, half-digested in their stomachs, which shows the absolute necessity of having the pond cleared after the departure of every hatching; for, had the young fry at present in the boxes and canal been allowed to enter the pond, a poor account would have been given of the smolts of the two following springs. Besides, a great many small eels were caught in the mud. It is impossible to keep out these intruders, as we caught a few travelling over land with their heads pondward; however, they were all small, and as we have not heard of any large ones having been got in the mud, they could as yet have done little harm. The pond is to be thoroughly cleaned out, and allowed to dry; and when filled the fry will be permitted to enter. The smolts that were turned out, we are persuaded, would have all left in a few days had they been allowed to have their own way, but as to the parrs they would have remained another year. These parrs were of last year's hatching, and were put into the pond by mistake when cleaning out the boxes and canal for this year's hatching. This now completes the history of the ova deposited in the breeding-boxes in November and December, 1853. The experiment from the first to the last has been conducted in a most satisfactory manner, and will ultimately tend to throw much light on the history of that noble fish the salmon; and if our salmon proprietors were alive to their own interests they would set about extending their breeding-boxes and ponds; for the ova deposited in the river in the natural way is subject to so many accidents that a good crop of fish can never be ensured, which is reduced to a certainty if the manipulation of the ova is entrusted to such able hands as those of Mr. Ramsbottom. Those smolts that have been marked with the ring will be anxiously looked for in July and August.—*W. B.; May* 26, 1856.

---

* 'Bulletin de la Société Vaudoise des Sciences Naturelles,' Tome iv. Bulletin No. 56. 1855.

Vanessa Antiopa.—This spring, in the Isle of Wight, my sister, out walking, marked down an Antiopa. She was gone ten minutes, and on returning found him, motionless, in the same place. A tumbler and card, the only weapons at hand, with a little chloroform, closed the comedy. This is, I suppose, the only instance of Antiopa being taken under a tumbler. It is a good specimen. This spring Eupithecia consignata was taken in Suffolk. Fuliginosa, the first this year, was taken on the 23rd

April, having come out to see the Review, of which he saw and heard much more than the House of Lords.—*Alex. Wallace*; 5, *Green Terrace*, *Clerkenwell*, *May* 3, 1856. —[*Intelligencer.*]

Melitæa Athalia ("only in the south," according to the 'Manual') is abundant in one locality in South Staffordshire. I shall be happy to send specimens to any entomologist who may think them worth applying for.—*J. Hardy*; 43, *Radnor Street*, *Hulme*, *Manchester*, *May* 6, 1856.—[*Id.*]

Daplidice and Lathonia.—In reference to your note at page 5147 of the 'Zoologist,' I find that your remarks on Lathonia and Daplidice do not bear the construction which I unintentionally put upon them. I am very sorry to have made the mistake. —*E. C. Buxton*; *New Brighton*, *June* 17, 1856.

Notodontæ not double-brooded.—As Mr. Crewe is still of opinion that his four eggs of Notodonta camelina, laid in May, which produced moths in his cage in August, "prove incontestably that the insect is double-brooded," of course it would be useless to argue the matter further. I must beg, however, that he will answer a no doubt very simple question for me. Two or three years ago I had a brood of N. camelina hatched in May (about fifty larvæ): all were full-fed in July, and in two or three weeks about a dozen moths appeared: now I can well understand that, according to the double-brooded theory, these specimens were the second brood; but as the greater part of the pupæ remained in that state all the winter, and produced moths the following spring, I am quite at a loss to know which brood these latter specimens are to be referred to: will Mr. Crewe kindly inform me? Mr. Crewe says, "Every entomologist, I believe, allows that Notodonta ziczac, N. dromedarius, N. dictæa and N. dictæoides are double-brooded," and "Why should not the same result, most naturally, take place with camelina?" I really don't understand such argument as this. If these four species were double-brooded, which I beg most distinctly to deny, I cannot see what effect it would have on the camelina question: these species are not very closely allied to camelina, but cucullina and Carmelita are, yet Mr. Crewe dare not venture to assert they are double-brooded: this sort of argument can therefore be used both ways, and after all amounts to nothing. Mr. Crewe mentions an instance of an autumnal specimen of Clostera reclusa: nothing is more likely, as the larvæ of this species are often full-fed very early in the summer, but I have had this insect in the pupa state from July till the following May, so the early ones do not always come out in the autumn of the same year. With regard to Mr. Crewe's concluding remarks, at p. 5149, I must be allowed to say that he first cast doubts on my assertions at p. 4899, so in this case it is the country entomologist who commenced the dispute. I cannot imagine that endeavouring to ascertain the truth, or correcting error, will ever damage Entomology or any other science, but, on the contrary, do it the greatest benefit. I am confident that my statements respecting the economy of camelina will be supported by every entomologist in the country competent to form an opinion, and am sure that, when Mr. Crewe has been an entomologist a few more years, he will find that four eggs will not make a brood any more than one swallow will make a summer. —*E. Shepherd*; *June* 13, 1856.

Notodontæ not double-brooded.—I cannot agree with Mr. Crewe that the Notodontæ are double-brooded, in the proper sense of the term,—that is, that in a state of Nature there is a brood of moths in the spring from which an autumnal brood is regularly produced, the larvæ of which furnish the brood which appears in the following spring. That specimens of some of the species occasionally appear in the autumn I am well aware, but they are generally small and faint in colour. I have reared most of the British species from the eggs. I never saw an autumnal specimen of N. Carmelita (the earliest of any in its appearance), trepida, dictæa or dictæoides. In rearing broods of N. camelina, ziczac and dromedarius, I have generally had a few moths out in the autumn, but the great majority always remained in the pupa state through the winter. Some time since I had a brood of Cerura furcula, and a few moths came out before all the larvæ were full grown; the remainder passed the winter in the pupa state, and produced the moths at the usual time in the following spring. I am convinced that rearing larvæ in confinement does frequently affect them in some way. Last July I took a female Aplecta herbida, which laid a great number of eggs, all of which hatched in a few days, and the larvæ were all fed together: some of these produced moths in October and November; others remained through the winter in the pupa state, and produced the moths early this spring; and the remainder passed the winter in the larva state, and from these the moths are now appearing. Had this A. herbida deposited her eggs abroad, and the larvæ been left in a state of nature, I very much doubt if any moths would have been produced till this month or early in the next.—*Henry Doubleday; Epping, June* 16, 1856.

Note on the Geometrina.—The announcement of the probable appearance of M. Guenée's work on the Geometrina, before many months have elapsed, will be hailed with pleasure, I believe, by many entomologists in this country who know the value of his works, notwithstanding the strictures to which Mr. Doubleday alludes. The only real ground of complaint is the want of descriptions of so many of the species, which deficiency renders the works of this talented entomologist less useful than they might be to those who do not possess an extensive library of entomological authors, or the means of ready access to one. The "generalities," characters of families, genera, &c., are admirable, and well worthy of attentive perusal. I am quite ignorant of M. Guenée's plan of arrangement in the forthcoming volumes, but should almost venture to predict that he will divide the Geometrites into two great phalanges, distinguished by the venation of the posterior wings, as he has already divided the Noctuites. The group, as it at present stands, is in a state of very considerable confusion. Thus Zerene adustata belongs to the same section as the Fidonidi, Caberidi, &c., and, along with Abraxas, Corycia, &c., should form the subfamily Zerenidi, and be placed before the Caberidi. Zerene or Mesoleuca albicillata and procellata by no means come in the same genus with Rubiginata, which belongs to the Cidaridi, and is closely allied to Electra Pyraliata, Polyphasia and Harpalyce fulvata, which should probably be united into one genus, which will however exclude Chenopodiata and several others. Electra Populata should be congeneric with Steganolophia Prunata, while Harpalyce Galiata belongs to the Melanthidi, and probably to the genus Melanthia. Lozogramma lineolata belongs to a different section from L. petraria, and is probably allied to Phibalapteryx, in which genus Stephens formerly placed it.—*R. F. Logan; Duddingston, near Edinburgh, June* 13, 1856.

Note on Dosithea circuitaria of Stainton's Annual.—Mr. Hunter having kindly sent me for examination the Geometra taken by himself in London, I find it is a Dosithea, and of course totally distinct from Eupithecia subciliata: but I still think it is not Hübner's circuitaria—it does not at all agree with his figure.—*Henry Doubleday; Epping, June* 16, 1856.

Occurrence of Platypteryx Sicula near Bristol.—This species has appeared again in Leigh Wood, near Bristol. A single specimen was captured last week, by Mr. Bolt, in that locality.—*P. H. Vaughan; Redland, June* 24, 1856.

Habit of Heusimene fimbriana.—April 16. Went to the "Brushes," with the intention of finding Heusimene fimbriana: took it by beating the oaks. Its habit is to fall down, dart down or fly down; unfortunately the last method is the exception, and it requires a really sharp and practised eye to see it fall or dart. When down it lies upon its back, and, on the slightest stir, it gets under the dead leaves by a series of jerks, using its long hind legs as propellers.—[*Intelligencer.*]

Elachista tæniatella, Zeller.—This insect, which is new to our Fauna, has been reared by me from the larva found mining the leaves of Brachypodium sylvaticum last September and October (see Ent. Annual, 1856, p. 64). It is closely allied to zonariella and gangabella, but distinguished at once from either of these by its having the cilia of the anterior wings unicolorous. I intend shortly to describe it in the 'Transactions of the Entomological Society,' as also Lithocolletis aucupariella, bred by me for some years past from the mountain ash.—*John Scott.*—[*Id.*]

Description of Coleophora Vitisella, a New Species of Tineina.—*Male:* expansion of wings 4 to 5 lines; head and face silvery gray; palpi gray; antennæ long and slender, annulated with whitish silvery gray and dark brown, having about twenty-eight annulations; thorax silvery gray; legs light gray, with darker rings; upper wings silvery steel-gray, cilia long, gray; under wings silvery steel-gray, cilia as the upper wings. *Female:* expansion of the wings 4½ lines; head and face light buffish drab or stone colour; palpi light; antennæ silvery gray, annulated as in the male; thorax buffish drab; abdomen grayish drab; legs silvery drab; upper wings silvery buffish drab, cilia the same colour; under wings as in the male. General appearance of male silvery steel-gray; of female buffish, with silvery steel-gray under wings. Above twenty specimens of this species have been bred by Mr. Hagen, and a few others by myself, from pupæ found in crooked cases attached to Vaccinium Vitis-Idæa at the "Brushes." The larva certainly feeds on the same plant.—*C. S. Gregson; Lancashire, June* 20, 1856.

Tinea biselliella.—Last week I discovered, to my sorrow, that a couch and sofa of mine were inhabited by *thousands* of the larvæ of T. biselliella (as I think). I happened to be sitting on the couch when I found two or three of these little larvæ on it: on a closer examination I found more, which induced me to open the pillow, when oh! to my horror, I found it stuffed with these disgusting-looking animals. I have had the couch about four years, and never saw the least sign of them before. I then went to look at my sofa, which I have had seven years: I carefully looked it over to see

"If there was any place
Where flesh and blood could creep,"

and felt sure that this at least was safe; however, I opened the pillow, when

"Oh! what a spirit-stirring sight
Does to my view unfold,"

thousands of larvæ eating away at my poor unfortunate sofa: I feel sure that they could not get out when in the perfect state, and that they must have been years, most likely ever since the couch and sofa were made, breeding inside. Can you or any of the numerous readers of the 'Intelligencer' tell me if it is possible for a moth to live and lay eggs in so very confined a place as inside a sofa or couch?—*Arthur Naish; Brooklyn Lodge, Ashley Hill, Bristol, April* 28, 1856.—[*Intelligencer.*]

Nomada borealis.—This bee has appeared in unusual numbers this season, and may now be captured at the N.W. corner of Hampstead Heath. I have taken one male and nine females; a friend has also taken a few. Andrena Clarkella, upon which it is parasitic, has also been very plentiful, and may still be found.—*Frederick Smith; British Museum, April* 21, 1856.—[*Id.*]

Uncertain Dates of the Appearance of Insects: Suggestions for keeping a Record of such Dates.—On the 11th of June I saw three specimens of Gonepteryx Rhamni, at Holbroke, near Ipswich. Two of these, male and female, were in fine condition; the third, a female, was much wasted. In the discussion last year the Rev. J. Greene stated that he did not believe this insect was ever seen in June, and that the advocates of its double-broodedness must see it fine in June to prove their case. Now I am willing to admit that the present is an exceptional season, in consequence of the cold spring, for, as Mr. Doubleday remarked in a private letter, we see spring and summer insects mixed together. The weather, in fact, has exercised a controlling influence in the development and appearance of the Lepidoptera: but still I think the appearance of insects which are known to hybernate, quite fresh, in the middle of summer, gives a somewhat new direction to our inquiries on the subject of hybernation; it points out clearly, to my mind, that both parties are right,—that part of the autumn brood hybernates, and the rest remain quiescent until the spring of the following year. I saw Libatrix at sugar last night, as fresh as possible, and in considerable number. Surely the eggs laid by these late insects will not produce insects in the autumn, appearing at the same time as those which flew in the warm days of April. It is a fair inference that the latter will produce the hybernating specimens, the former those which pass as pupæ through the winter. The influence of weather, confinement and feeding upon the development of insects is a very interesting subject. I do not, however, go the length of ascribing these influences as the invariable cause of the irregularity. Nature has defined her laws, and depend upon it they are not broken so easily as we are apt to imagine. Many years ago I used to remark that Anthocharis Cardamines always appeared on or about the 22nd of April: for the last ten years I have seldom seen it before the middle, and this year not till the end, of May. The reason I assign for it is this: the insect and the plant upon which its larvæ feed are equally affected by atmospheric influences: the development of each is promoted or protracted by the same cause, and this beautiful provision is evidently designed to prevent the extermination of species. Every collector knows that in most species the first insects he takes are always males: this is evidently designed, though the cause may not be so obvious. It is more difficult, perhaps, to account for the irregularity in the appearance of larvæ subjected to precisely the same treatment: thus of two cocoons of Notodonta cucullina, given to me in the spring, and kept, as they themselves had formed their pupæ-cases, buried in dried grass, one came out June 5th, the other June 18th. Again, insects appear sometimes in different parts of the country at different periods. Thus Mr. Hodgkinson reports having taken Eurymene Dolobraria, in Westmoreland, on Whit Monday. I never saw it here—a southern locality—before the beginning of June. My brother took in April one of the dark varieties of Harpalyce Silacearia, the H. insulata of Haworth. I do not take the light species here till the end of June. For these reasons I think it would be very interesting if collectors would keep a note and publish the first appearance of insects in their particular localities: I will send you a list if you wish it.—*C. R. Bree; Stricklands, Stowmarket, June* 20, 1856.

On the Manner in which Vespa rufa builds its Nest.

By Frederick Smith, Esq.

In the first, ninth and tenth volumes of the 'Zoologist,' I published papers on the social wasps of Great Britain; all the known species were described, and many particulars of their economy were added. One object of my present communication is to furnish an answer to a question which has been repeatedly put to me, "How do wasps build their nests?" I have also a second object in view, that of furnishing some additional testimony in refutation of the ingenious theory published under the article "Bee," in the 'Penny Magazine.' Lord Brougham, in the Appendix to his 'Natural Theology,' has ably demonstrated the untenable nature of the hypothesis which is thus briefly characterized:—"It is supposed that the bee first makes cylindrical excavations, which are separated from each other at their contact by the thickness of the wall intended to be formed, and then cuts away so as to make the cylinders hexagonal prisms, the walls being of that thickness."

In the first place we will proceed to show how a wasp's nest is constructed, and, in the next, upon what basis the above theory stands, and we may also then enquire into the value of Buffon's theory of a number of cylinders by pressure upon each other naturally taking the hexagonal form, and so producing the beautiful combs of the honey-bee.

A wasp's nest is commenced by a single female, one of a brood of the previous season, which has passed the winter in a state of torpidity; the warm days of spring arouse her from her winter's sleep, and she issues from her hybernaculum in search of a suitable place in which to commence the construction of the vesparium. Having found some hole or tunnel in a bank, she proceeds to fashion and adapt it to her purpose.

Observing a female wasp (*Vespa rufa*) apparently in search of the entrance to her nest, I watched and observed her enter a circular orifice in a bank; on digging to the depth of about eight or ten inches I came to a chamber about three inches in diameter, in the centre of which was suspended a globular nest, one inch and a half in diameter: the nest was attached by a footstalk to the root of a plant which crossed the top of the chamber; the nest closely resembled in form a half-blown rose, hanging downwards on its stalk; it contained a single comb of cells, which was seven-eighths of an inch in diameter; the number of cells was thirty-three, in various stages of completeness; four cells were closed by the white silken caps which are spun by the larvæ; seven cells contained each a nearly full-grown larva; nine others had in them larvæ in different stages of growth, and round the margin of the comb were cells containing each a single egg. Having obtained nests of wasps in different stages of formation I am enabled to trace the gradual progress made by the queen as foundress of the colony.

The mother wasp having found or formed a subterranean chamber adapted to her purpose, constructs a footstalk or attachment to a root, or other suitable support at the top of the vaulted chamber: at the end of the supporting column she constructs three or four cup-shaped receptacles; these are, of course, in a reversed position, hanging bell-wise, the depth of each is about the tenth part of an inch. Having proceeded thus far, her next care is to deposit an egg in each: these are hatched in four or five days, depending much upon the temperature of the weather; during the interval, the parent wasp lays the foundation of four or five other cells, and by the time the four eggs deposited in the first instance are hatched, she has the foundation of more cells ready to receive eggs. The larvæ of wasps grow rapidly, attaining their full size in from ten to twelve days, so that as soon as the eggs first deposited are hatched, the labour of the little architect is divided between feeding her young and constructing cells for additions to her family. From the time at which the first larvæ are hatched the wasp commences to give to the superstructure of each cell [illegible] regular and beautiful hexagonal form; *with the growth of the lar*[illegible]*e raises the cells:* no cell is ever finished or carried up to its full height until the larva contained in it is full-grown; the progress of building a cell is to be traced, in many instances, by the different coloured matter used in its construction; great beauty and variety may be observed in many nests, from the wasp having used different coloured woods in the formation of the cells. It will therefore become apparent to every one, that the raising of the walls of the hexagonal cells in a wasp's nest is as regular and progressive as that of a mason erecting the walls of an hexagonal building, time elapsing between the addition of each layer, in the same way as might intervene during the operations of a mason—time sufficient for each additional layer *to harden* and prepare it for the support of further additions to its walls.

On viewing one of these foundation-combs, it will be observed that the outer foundations of cells, or those which occupy the circumference of the comb, exhibit scarcely an approach to the hexagonal form; but, immediately they are raised beyond the cup-shaped foundation, they assume the perfect hexagon, whilst in the centre of the comb the four or five foundation cells, or those formed at the commencement, are carried upwards in perfect hexagonal forms, the outer walls having the angles of the hexagon, as acute and regular as those which come in contact with the angles of adjacent cells.

We must now carry our mind backwards to the point at which we traced the formation of the footstalk which supports the nest from the roof of the chamber: at the same time that the mother wasp constructs the foundation of the first four or five cells she simultaneously spreads over them a detached covering, exactly represented by an opened umbrella: this covering serves to carry off any wet which might drop from the roof of the chamber, and prevents any particles of dirt from falling on the top of the comb, wasps never allowing any particles of dirt or rubbish to litter their dwellings. As the comb widens, so the labour of increasing the outer envelope proceeds, not in a single sheet, but additional layers are spread over that which at first served to shelter the foundation-cells; by degrees the nest assumes the exact resemblance of a half-blown rose, the successive layers of delicate papery tissue representing in form the petals of the flower.

The materials of which the nests of wasps are constructed are well known to be the scrapings of different kinds of wood, mixed up into a plastic consistency with a liquid or gluten secreted by the wasp; this she spreads out as required with her broad flattened tongue, and for the purpose of collecting the wood scrapings she is furnished with stout denticulated jaws. Great differences will be observed in the nests of wasps obtained in different localities; in some places I have observed nests nearly white, sometimes they are of a gray colour, whilst in another locality they are of a rich variegated brown and yellow. The differences of colour are attributable to the different kinds of wood which prevail in a district, but this only in a degree: it is to the situation in which the nest is found that we must principally look for the cause of the difference. Wasps, as well as many other Hymenopterous insects, exhibit on all occasions a power and will to reason and to act according to circumstances: in intelligence they are far removed from the creatures of blind instinct which some have supposed them to be. If a wasp, Vespa vulgaris, for instance, builds her nest under ground, it is necessary that the materials she uses should be very different from those which would suffice were she to build on a beam or shelf, in which situation it would be protected from damp and other casualties to which it would be exposed under ground. Now the wasp is perfectly conscious of this, and selects her materials accordingly: it is necessary that an under-ground nest should be protected by a series of layers of delicate tissue; this is made of the scrapings of sound timber. The layers are spread over each other, and serve admirably to carry off any droppings of wet, and thus protect the inhabitants of the nest, who would soon perish if exposed to cold and wet, particularly the young brood, which, as well as the perfect wasps, are very susceptible of its influence.

When, on the contrary, the wasp builds on a beam or shelf, there is no necessity to protect the brood from wet, a certain degree of protection from the changes of temperature is all that is required; there is consequently no necessity for the labour required to make a covering of waterproof tissue, which, as stated above, is fabricated of materials obtained by scraping sound timber; a different and far more beautiful covering is constructed of decayed wood, the covering having the appearance of being composed of a number of beautiful light brown shells, having darker transverse bands. These beautiful shell-like formations, when immersed in water, are quickly dissolved, and absorb moisture rapidly; consequently they would not, in any way, answer as coverings to an under-ground nest. As this is well known to the wasp, we may reasonably ask whether the faculty which directs the wasp in these things is not clearly an operation of the mind, and is not the power to construct the beautiful fabrics which we see, a faculty instinctive in the wasp, apart from that which we have been considering above? Not only is her work perfect in all its parts, but it is performed without teaching and without observation; the wasp of to-day is not a more skilful architect than the wasp which constructed her dwelling two thousand years ago.

Having thus briefly sketched the operations of the female wasp in laying the foundation of her colony, and of the manner in which she proceeds in constructing the first comb of the nest, it may perhaps be advisable to state briefly the proceedings which follow in the enlargement and completion of the nest. In the foundation-comb constructed by Vespa rufa, there were thirty cells in different stages of completeness; of the eleven which were completed, four were capped by the full-grown larvæ, and seven were about to be closed in, so that in a few days the foundress would have obtained the assistance of four labourers, and seven additional ones in about three weeks afterwards: it is most probable that when this assistance is obtained the mother wasp seldom, or perhaps never afterwards, quits the nest. During the months of July and August a female wasp is seldom seen, and when the colony becomes populous the foundations of cells must be constructed rapidly, the mother wasp being then occupied in laying eggs alone. Each cell, on the young and perfect wasp quitting it, is cleared out and prepared for a fresh tenant. We have seen that in the foundation of a cell the walls are not raised more than about two lines before an egg is deposited in it, and that the superstructure is raised simultaneously with the growth of the larva. But how does the wasp proceed in the case of a finished cell? the same gifted intelligence which prompted her to choose the situation in which to construct her nest, teaches her, that if her egg was dropped to the bottom the young grub must perish, as the wasps could not get at them to give them aliment; the careful mother therefore attaches the egg to one of the angles of the cell, at the same distance from its orifice as in the case of the foundation of a cell: the young grub on being hatched retains the same position as the egg, and grows downwards instead of upwards. The completion of a nest is a repetition of the above mode of procedure.

Having thus completed a sketch of the manner in which wasps build their nests, we may next endeavour to ascertain to what extent it refutes or supports a few of the more remarkable theories which have been promulgated. It will no doubt appear to many who have not practically studied the subject, that the endeavour to furnish a reason why the bee builds hexagonal cells, from the fact of her eyes, when magnified, being found to consist of a mesh of hexagons, has not only ingenuity but also much apparent probability to recommend it: those who have paid attention to the structure of insects at once reject the inference, since many of the solitary Hymenoptera, having eyes similarly constructed, build circular cells.

To the absurd theory of the hive-bee constructing cylinders, which, pressing upon each other, necessarily take the hexagonal form, the proceedings of the wasp appear to us to furnish a sufficient refutation, had not its untenableness been long ago demonstrated. The theory of cylindrical cells being first erected, and then cut away, so as to form hexagons, is quite as definitively met by a negative, when we reflect upon the operation of the wasp: here we see a single individual completing seven hexagonal cells, and laying the foundation of many others, as perfect in their form and as exquisitely finished as if they had been the work of the united labour of a number of individuals: here we have no two wasps working opposite to each other, which has been supposed necessary in the case of the hive-bee. The thickness, form and height of the walls of the cells are all fashioned and erected by the parent wasp, she adapts the covering of the whole to the situation in which she places her nest: all is effected without the necessity of teaching or of seeing others work in a like manner. The first individual which arrives at maturity performs the same work in the same perfect and admirable manner: the instinctive faculties with which the Creator has endowed them enables them to build the cells in the utmost perfection, and also enables them to select those materials which are best adapted to their purposes.

Frederick Smith.

Hymenoptera obtained from dead Bramble-sticks.—Perhaps the following may be worth insertion, as a useful and encouraging hint to young hymenopterists. Early in March I employed a gardener to go to a locality where I knew brambles abounded to search for pierced withered branches. He returned with some fifty sticks, which I placed in a flower-pot covered over with gauze. Out of these have issued Ceratina cærulea, male and female; Osmia leucomelana, male and female; Crabro tibialis and C. rufiventris, male and female; Trypoxylon attenuata, male and female; Chrysis cyanea, male and female; Hedychrum auratum, male and female; &c., &c.—*W. H. L. Walcott; Clifton, Bristol, June* 4, 1846.

Notes on the Genus Haliplus. By John A. Power, M.D.

I was induced to pen the following brief notes on the somewhat difficult genus Haliplus in consequence of being frequently applied to by my entomological friends for the species affinis, fluviatilis and confinis, which appear to be very general desiderata, but rather in consequence of not being well understood than uncommon. I have recently investigated them with some care, in their *living state* (a precaution too much neglected in these aquatic tribes), at my favourite locality, Cowley, near Uxbridge, and think that a few short remarks as to the mode by which they are to be distinguished may not be unacceptable. I do not pretend to give *descriptions*, for which I would refer to the excellent French Fauna of Fermaire, which cannot be too strongly recommended, but merely propose to point out the salient features by which the more nearly allied species may be diagnosed. I have adopted the nomenclature of the list recently published by the Rev. Hamlet Clark.

A most valuable means of diagnosis, used by Fermaire in establishing sections, is afforded by small longitudinal furrows ("sillons"), one on each side of the thorax at the base, but they often require some tact to observe them, and should be exposed to an *oblique* light. In some species, as in lineatocollis, they are very large and curved, in others they are reduced to a somewhat obscure depression, but are constant.

The colour of this genus varies much with the degree of maturity; but the true cinereous or ferruginous tinge which characterizes certain species may always be recognised by a little attention, even in the most immature condition.

HALIPLUS, *Latr.*

1. H. elevatus, *Panz.* This species requires no remarks. It is not to be mistaken, from its size, *elevated lines*, the elytra, &c. It is abundant from spring to winter in streams at Cowley; also in the Ravensbourne near Sydenham, and the brooks running into it, &c. &c.

2. H. mucronatus, *Steph.*
3. H. fulvus, *Fab.*
4. H. flavicollis, *Sturm.*
5. H. variegatus, *Sturm.*

These four species are nearly allied. They may be distinguished from those which follow by their large size; and especially from confinis, lineatocollis, ruficollis and fluviatilis, by the *absence of furrows.*

First, mucronatus at first sight, in colour, &c., resembles fulvus, but is longer, narrower and more parallel, and has no black lines on the punctate striæ. There is a remarkable prolongation of the apices of the elytra internally, but the most prominent difference is in the thorax, which is not so much narrowed in front; posteriorly its sides are nearly parallel, anteriorly they turn a little inwards; whilst in fulvus, and also flavicollis, they form *right lines*, inclining forwards. Rare. I have taken it only near Cambridge, at Swaffham Prior, and Hornsea Fen.

Secondly, flavicollis is distinguished from fulvus by its paler immaculate elytra, and by the absence of the ferruginous tint manifest in fulvus, even when immature. It is rather smaller and more attenuated behind: fulvus has, I believe always, more or less numerous black longitudinal lines on the elytra, sometimes more or less confluent. Both are very common, but flavicollis occurs generally in large pieces of water, such as canals. I have seldom, if ever, taken it in small pits.

Thirdly, variegatus is at once distinguished from fulvus (which it most resembles) by its *tout ensemble.* It is more deeply punctured in proportion, more regularly ovate and *lumpy,* shorter and considerably smaller: small specimens approach to large specimens of ruficollis. It is more maculated in blotches, and all my specimens have a remarkable spread-eagle-shaped black blotch, extending backward along the suture from the middle. In fulvus the dark lines are seldom confluent to any extent; some specimens are very rubicund, others more pale and yellowish. I fancy the latter are the subnubilus of Babington, the former his rubicundus. I think that Dr. Schaum has made a mistake (which Mr. Clark's list perpetuates) in referring that insect to ruficollis from a *single specimen,* accidentally, I suspect, wrongly named. I have a specimen named rubicundus by Mr. Babington himself, which is variegatus. Rare to me. I have met with it at Cambridge, New Forest, and once or twice at Wandsworth.

6. H. affinis, *Steph.* = cinereus, *Aubé,* is at once distinguished from ruficollis and from fluviatilis, which it resembles exactly in colour, by the *absence of furrows* on the thorax. It has the form of flavicollis, but is much smaller, and of a much more pale testaceous-gray. The punctures on the striæ are more ingrained with black, having a tendency to form streaks, but *not* maculations. The *punctures are much more numerous,* and four or five deep black impressions at the base of each elytron give a peculiar appearance. Wandsworth; marshes near Notting Hill; Bradgate Park, Leicester; Cowley, in the stream; Bentley, near Alton. Apparently common, but not distinguished.

7. H. ruficollis, *Degeer.*

8. H. fluviatilis, *Aubé.*

These are the most difficult of the whole genus to distinguish. Both have furrows on the thorax, but are smaller than all the preceding: fluviatilis, in its clear testaceous-gray colour, exactly resembles affinis (in company with which it occurs in the stream at Cowley), but is at once distinguished *by the furrows.* It has none of the ferruginous tinge which always is present, especially on the legs, even of immature ruficollis. It is more strictly oval, less abruptly rounded at the shoulders, and not so suddenly attenuated behind: the elytra look flatter. The difference of form is best seen on the under side. In both species more or less distinct dark lines mark the punctate striæ, and these lines in fluviatilis are usually interrupted, so as to form two oblique bands on each elytron: they are never confluent, so as to form maculæ, which is often, but not always, the case in ruficollis.

On looking down the insect, in clean specimens, there usually appears a distinct black sinuated band at the base of the elytra and thorax, not distinct in ruficollis. Fermaire says that fluviatilis is rather the largest. Both insects vary a good deal in size, and when *taken in series* appear to me of much about the same magnitude, but fluviatilis, being *narrower*, looks perhaps *relatively* longer. Lastly, every specimen I ever took has been in *running water*, often in company with ruficollis, but I have never taken it in *pits*, in which that insect abounds. These differences may be sometimes individually slight, yet one cannot mistake the *tout ensemble* of two *clean series* compared with each other. I have only taken it at Cowley and Bradgate. Mr. Bold takes it in Northumberland. I suspect it is rather undistinguished than rare.

9. H. obliquus, *Fab.*

10. H. confinis, *Steph.* = lineatus, *Aubé.*

These are at once distinguished from every other species by the *absence of deeply punctate striæ.* H. obliquus is tolerably constant in its pale cinereous colour, with broad black interrupted lines, more or less confluent: confinis is readily distinguished from it by *having thoracic furrows*, which obliquus has not; it varies much in colour, from pale cinereous to ferruginous. In one form the dark lines are more continuous, but not confluent: in another, a pale northern variety, they are much interrupted and abbreviated. H. obliquus is generally distributed, confinis not so common. I have taken it at Wandsworth, Cambridge, Woking, Notting Hill, Rothsey in Northumberland, but sparingly.

11. H. lineatocollis, *Marsh*, cannot be mistaken. It has a flat, oval, boat-shaped form, little attenuated behind: colour cinereous: thorax *with a long curved dark furrow* on either side, and a more or less distinct dark mesial line. Common everywhere.

I have stated that several of the more uncommon species may be obtained at Cowley, about a mile from West Drayton. It is one of my favourite localities for water-insects. Some pits and a stream there have afforded me, amongst others, Hydroporus decoratus, vittula, nigrita, *Fab.*, angustatus and memnonius, a fine series of Octhebius æneus, O. margipallens, Haliplus elevatus, affinis and fluviatilis, Ilybius angustior and Orectochilus villosus; also many good Brachelytra, as Siagonium quadricorne, Homalota cuspidata, deplanata, &c., and many Pselaphidæ.

The neighbouring locality of Black Park, well known to Lepidopterists, is also worthy the attention of Coleopterists. I took there *one* day Notiophilus rufipes and other good Geodephaga, with many Brachelytra, including eleven species of Stenus, a fine series of Plancus, &c. The beautiful Rhynchites cupreus is abundant on the fruit of the mountain ash.

JOHN A. POWER.

Burton Crescent,
June 13, 1856.

Capture of a Coleopterous Genus new to the British Fauna.—Whilst on a visit, during the last week in April, to Mr. Darwin, at Down, near Bromley, I had the good fortune to meet with a solitary specimen of the Staphylinideous genus Euryusa, which has not hitherto been recorded as British. Mr. Janson is of opinion that it is referrible to the E. acuminata, described by Mäerkel in the 'Ent. Zeitung' in 1842, though it is of a somewhat paler hue (the result perhaps of immaturity) than that species as indicated in the diagnosis. Like so many of the Aleocharini, it seems to be an attendant upon ants; and it was from beneath a stone, overtopping a colony of the Formica fusca, that my example was taken. The chalky slopes in that immediate vicinity would appear to be rich in Coleoptera; for, although nominally not collecting at the time, I noticed several species which I do not often observe elsewhere: I may mention, *inter alia*, Coprophilus striatulus; and from beneath a single flint, resting upon a nest of the common brown ant, I captured no less than nine specimens of the Claviger foveolatus.—*T. Vernon Wollaston ; 10, Hereford Street, Park Lane, June*, 5, 1856.

Captures of Cryptocephalus and Agrilus biguttatus.—This summer has already become remarkable by the number of rare Coleoptera taken, and amongst these Cryptocephalus nitens holds the most distinguished place. Of this excessively rare species I believe that more than four hundred examples have been taken, and most of them have been beaten off sallows at Cobham in Kent. Dr. Power, perhaps induced by the capture of a single specimen last year, appears to have led the van, and Mr. Baly, Mr. Adams, Mr. Syme, &c., have shared in the labour and the spoil. C. Coryli has occurred also in some abundance in the same locality, and has also been taken by beating birch trees at Wickham both by Mr. Douglas and Mr. Ingall. A few specimens of C. lineola have occurred at Cobham and Darenth: it has been beaten from birch, whitethorn, and Clematis Vitalba, and has been swept off grass. Agrilus biguttatus has been beaten at Darenth by Mr. Miller and Mr. Syme.—*Edward Newman.*

Capture of Hydroporus Scalesianus near York.—This pretty little insect, the H. pygmæus of Sturm and Aubè, hitherto known as British by a single specimen in the cabinet of the late Mr. Stephens, which was said to have been taken by Mr. Scales near Swaffham, in Norfolk, has been taken in some abundance near York, by the Rev. William Hey, to whose great kindness I am indebted for a supply of specimens. Directly I saw the insect I felt convinced that it was our long-lost Scalesianus, but not trusting to my own judgment I sent it forthwith to Dr. Power, the referee from whose decision in such cases there is no appeal, and he at once confirmed my view of the case. Mr. Hey writes, "I took a good many when I first discovered this insect, but having revisited the spot I find comparatively few. It is curious that for two or three years I have fished the very same bog without hitting on the insect, and that too in the very same spot where I found them. I believe the explanation to be that both H. Scalesianus and H. decoratus, which I take in company with it, are confined to the margin of the water, this being especially the case with Scalesianus: you might fish for hours without taking a single one, and be treading them under your feet all the time: the rain of the last month has caused the water slightly to overflow the mossy grass at the edges of the ponds, and both the species above-mentioned are taken by scraping the net along the grass in the flooded parts."—*Id.*

Ravages committed by Otiorhynchus scabrosus on the Hop.—I have just heard from Mr. Douglas that the great pest of the gardener, Otiorhynchus scabrosus, is occurring in profusion in the hop-grounds of Kent, and occasioning great injury to the now rapidly growing hop vine. This formidable weevil, like its conger O. sulcatus, is truly polyphagous, destroying the roots in its larva state, the leaves, bark and tender branches in that of imago.—*Id.*

Capture of Carabus intricatus in Devonshire.—This long-wished-for insect has been taken at last: it was taken quite accidentally by Mrs. Hayward, the wife of a brother collector residing in Devonport, on the 18th of June last, in one of our Devonshire woods, about twenty miles from Plymouth: it was lying upon the ground wounded, but still living. Mrs. Hayward brought the specimen to me the following morning, and I immediately recognised it as C. intricatus (for intricatus don't require any examination); once have a peep at a specimen and you will never forget it: its beautifully cute appearance distinguishes it from all the others of the genus; the very long mandibles, palpi and legs, the deeply relieved striæ of the elytra, and the very acute angle to the scutellum: these points at once show it is the veritable C. intricatus. I will here mention, to save speculations as to the probability of its not being that species, that I am acquainted with C. intricatus, have seen those in the British Museum, and have found the thorax of three specimens, two in Devonshire in Bickleigh Vale, and one in Cornwall on the cliffs at Whitsand Bay. I sent to Mr. S. Stevens three years ago a thorax, which that gentleman returned to me as belonging to Carabus intricatus, so that there is no mistake about the species. The post of killing and setting was assigned to me; chloroform was the life destroyer, and I set it upon card-board with gum-dragon: remember, whoever gets a chance to look at this specimen, that it has no pin-hole, but has a longitudinal crack in the scutellum, but otherwise a splendid perfect specimen; not a tarsus gone. This capture is the most stimulating of the season. It was only in this years 'Annual' the Rev. J. F. Dawson wrote dispairingly of this species not having been taken for so long a period: it is at least fifteen years since it was taken until now; let us hope that Diachromus Germanus and Chlænius Agrorum will in fairness show themselves next spring, they being in some sense colleagues of intricatus, but they must be fetched from their country abode; they will not give up a country life for a town one on their own account; it requires some strong, good-tempered individuals, to give these species a fair chance, else we must not talk about their not being there: the likely stations for Germanus and Agrorum have not had a week bestowed upon them since the days of the lamented Dr. Leech. There is this to be said, however, that species that are common elsewhere and abundant, though found here commonly distributed, are few in number in their natural habitats, which, if applied to the rarer species, make their capture very uncertain, as they are very local and precious few. I have been on the look-out for the last three years for intricatus, always expecting to take it at sugar, as I never sugared in Bickleigh without taking catenulatus in plenty and sometimes violaceus, but intricatus has not paid me a visit yet; however, I hope some night it will be so obliging.—*J. J. Reading; Plymouth, June* 24, 1856.

Entomological Meeting at Reigate.—The members of the Entomological Society, and friends, were invited down to Reigate by their estimable President on Saturday last; and after a most delightful ramble on the Buckland Hills and the adjoining country, returned at five o'clock to the Swan Inn to a cold collation, kindly provided by the President. There were thirty-eight present, including Drs. Gray, Alexander and Baly; Messrs. Ward, E. Sheppard, Schofield, Grove, A. F. Sheppard, Wollaston, Pickersgill, Pascoe, F. Saunders, Fenning, Marshall, Westwood, F. Smith, A. White, Linnell, Syme, Stainton, F. Walker, Capt. Cox, Edwin Shepherd, S. Stevens, Miers, Hudson, Dutton, F. Bond, S. Waring, Matthew Marshall, E. Janson, Rev. W. Harrison, Vicar of Reigate, Brewer, F. Moore, &c.: some excellent and appropriate speeches were made by the President, Dr. Gray, Mr. Westwood, Mr. Fenning and others. Mr. Fenning proposed the health, in a humerous speech, of the insect of the day, Callistus lunatus, or *lunaticus*, as he was pleased to call it, and Mr. Janson returned thanks. Besides seven or eight beautiful species of Orchises gathered on the hills, some scarce insects were captured, including Callistus lunatus, Syncaliptra arenaria, Drilus flavescens, Aphodius 4-pustulalus, some rare Staphylinidæ in Fungi, &c. —*S. S.*

Capture of Heliomanes Umbellatarum.—I took a stroll last evening with my children into Burnt-ash Lane, and succeeded in obtaining two specimens of that rare little longicorn, Heliomanes Umbellatarum, by beating the dead sticks wherewith the gaps in the hedges had been mended.—*J. W. Douglas; 6, King's Wood Place, Lee, June* 26, 1856.

Boxes for the transmission of Insects by Post.—Mr. John Bolt, of Broad Street, Bristol, has sent me a sample box, of his own making, admirably adapted for transmitting insects by post. It is light, and is so firm as to resist a considerable blow with a heavy round ruler; but whether it would maintain its integrity under the sledge-hammer of the official stamper I cannot say.—*Edward Newman.*

Occurrence in Britain of Edwardsia vestita.—I have the pleasure of recording the finding, on the Welch coast, of this very remarkable tube-making Actinoid, hitherto only met with, as far as I am aware, in the Grecian Archipelago, by the late Professor Edward Forbes. I have procured eighteen specimens, some of which are in the aquarium of the Zoological Society in Regent's Park, and others are in my own collection, which I shall be happy to show to any one interested in these matters. The tube is not merely an investment of gravel, small stones, &c., with which Sagartia bellis, Bunodes crassicornis, and some other Actiniæ are covered occasionally; but it is a true leathery tube, composed of layers of glutinous material and mud, as regular and continuous as that of the Sabellæ. The animal is vermiform, and, like other Actiniæ linking the genus with the Annelida and Echinodermata, the period of greatest elongation is at night. Some of my specimens have voluntarily left their tubes, and others have been deprived of them by myself; but in each instance they have immediately set to work making others, of the material with which I have supplied them, completing the first or inner coating in a couple of days. Their value as novel inmates for the marine aquarium consists in their excessive hardiness. They continue boldly out and fully opened under nearly all circumstances, and hardly any amount of foulness in the water seems to affect them. I hope to give further details of the habit and anatomy of this exceedingly curious zoophyte in next month's 'Zoologist.' I may also add, that as every week brings me several hundred of living marine animals, chiefly of the lower forms of Invertebrata, new species, fresh varieties, and abnormal conditions are continually being presented.—*W. Alford Lloyd ;* 19 *and* 20, *Portland Road*, *Regent's Park*, *London*, *June* 16, 1856.

Occurrence of the Great Sea-cucumber (Cucumaria frondosa) *at Banff.*—I had the pleasure yesterday, for the first time here, of receiving from one of our fishermen a very large and most splendid specimen of the above. It was brought up on their lines. It is still alive, but appears a little sickly. When at rest it is fully 16 inches long. It is of a very deep purple in all except the under side, which is grayish. It is a most wonderful and at the same time a most interesting animal. What strange forms and curious shapes it assumes at will! What pen or what language could describe them? Now like a pear, then like a long purse or large pudding; now like two monster and knotty potatoes joined endways; now like a bulb, smooth and no suckers visible; and then, again, as long as my arm, and rough and warty looking. Its tentacula, too! how strange they are! simple to appearance, but yet how complete and how beautiful withal!—But, no! I am not going to attempt it. What strange forms and what beauteous creatures and inconceivable things there are in the ocean's depths! What a pity it is that we cannot traverse its hidden fields and explore its untrodden caverns! I wish I could! What a poor, puny-looking thing the girken (*Ænus lacteus*) is beside this great king of the Holothuriadæ family! It appears to be a rare species with us, or at least is very seldom met with.—*Thomas Edward ;* 13, *Old Market Place*, *Banff*, *June* 5, 1856.

Note on a Sea-cucumber in Confinement.—The suicidal propensities of the Echinodermata are traditional. Nothing is more common than to see a star-fish in an aquarium throw off one or more arms, crawl about for a few hours or a day or two, and then die. Less, however, is known of that more obscure family of the order, the Holothuriadæ; therefore some value will be attached to the fact that just five weeks ago (May 9), during my removal from St. John-Street Road to my present place of business, a pet Pentacta pentactes, which for many months I have kept in a quart-glass jar, became irritated at the jolting of the cab, and on the following day threw off its head, tentacula and dental apparatus, and then discharged its viscera. These I removed with a pipette, the animal itself lying helplessly, an empty sac, on the sand at the bottom of the jar. As in three days it gave no signs of decomposition, I let it remain; and on the fourth day I found it closely and firmly attached to the side of the jar. Since then it has kept on moving about with as much activity as belongs to its sluggish tribe, sometimes twining among the fronds of Ulva latissima, and very often remaining motionless on the side of the glass, at the water's edge. Occasionally, chiefly at night, it drives from its anal extremity a current of water, sufficiently strong to blow the sand into a hole where it happens to impinge upon it. I hope to have to announce indications of renewal of the tentacles in the August number of the 'Zoologist.' It is interesting to state that the water employed in this case is the artificial compound prepared from the formula of Mr. Gosse, of the entire efficiency of which no severer test can be found. I shall be happy to show my headless and bowel-less friend to any one favouring me with a call.— *W. Alford Lloyd; 19 and 20, Portland Road, Regent's Park, London, June 16, 1856.*

NOTICES OF NEW BOOKS.

'*Annals and Magazine of Natural History*,' Nos. 101 and 102, dated May and June, 1856. Price 2s. 6d. each. London: Taylor and Francis, Red Lion Court, Fleet Street.

The contents of No. 101 are as follow:—

'On the British Species of Arctium.' By Charles Cardale Babington, M.A., F.R.S., &c.

'List of the Mollusca observed between Drontheim and the North Cape.' By R. M'Andrew, Esq., F.L.S., and L. Barrett, Esq., F.G.S.

'Some Account of the Infant Orang Utan.' By Alfred R. Wallace.

'On the Theory of the Fecundation of the Ovum.' By E. Claparède.

'Another Note on Scissurella.' By S. P. Woodward.

'On the Occurrence of the Fossil Genus Conoteuthis, *D'Orb.*, in England.' By S. P. Woodward.

'On the Development of the Fresh-water Sponges.' By N. Lieberkuhn.

'On the Development of the Chiton.' By Professor S. Loven.

'On the Cell Development in Plants.' By Professor Arthur Henfrey.

Bibliographical Notices:—'A Monograph of the British Hieracia;' by James Backhouse, Jun. 'A List of British Coleoptera;' by J. F. Dawson and Hamlet Clark.

Proceedings of Societies:—Royal, Zoological, Linnean, Geological.

Miscellaneous:—The British Museum, its Catalogues and Accessions in Zoology. On the Development of the Lampreys; by M. Schultze. Note on Clausilia Mortilleti; by Charles Prentice. On a Supposed New Species of the Genus Equus; by M. I. Geoffroy St. Hilaire.

The contents of No. 102 are as follow:—

'On the British Diastylidæ.' By C. Spence Bate, F.L.S.

'Description of a New Species of Sphærium found near London.' By Dr. J. E. Gray.

'Description of Eight New Species of Birds from South America.' By Philip Lutley Sclater, M.A., F.Z.S., &c.

'On Scissurella and Schismope.' By J. Gwyn Jeffreys, Esq., F.R.S.

'On the Orang Utan or Mias of Borneo.' By Alfred R. Wallace.

'On Professor Huxley's Attempted Refutation of Cuvier's Laws of Correlation in the Reconstruction of Extinct Vertebrate Forms.' By H. Falconer, M.D., F.R.S., &c.

'Descriptions of Three New Species of Paludomus from Burmah, and of some Forms of Stenothyra (Nematura) from Penang, Mergui, &c.' By W. H. Benson, Esq.

'On the Minute Structure of Certain Brachiopod Shells and on Vegetable Cell Formation.' By William B. Carpenter, M.D., F.R.S., F.G.S., &c.

Bibliographical Notice:—'General Outline of the Organization of the Animal Kingdom, a Manual of Comparative Anatomy;' by Thomas Rymer Jones, F.R.S. (second edition).

Proceedings of Societies:—Zoological, Botanical of Edinburgh.

Miscellaneous:—On the Influence of the Soil on the Distribution of Plants; by M. Stur. Note on the Freshwater Dolphins of South America; by M. P. Gervais.

Mr. Wallace's accounts of the orang utan are extremely interesting, indeed are the only oases in the desert of Science which these two numbers contain. Speaking of a baby orang, Mr. Wallace writes:— "This little animal was probably not more than a month old when I obtained it by shooting its mother, with whom it fell to the ground, apparently uninjured. I found out afterwards that it had then broken a leg and an arm, which, however, mended so rapidly that I only noticed it, a week or two afterwards, by observing the hard swellings on the limbs where the irregular junction of the bone had taken place. When I first obtained it, it was toothless, but a few days afterwards it cut its two lower front teeth. I fed it with rice-water, given out of a bottle with a quill in the cork, which, after one or two trials, it sucked very well. When, however, a finger was placed in its mouth it would suck at it with remarkable vigour, drawing in its little cheeks with all its might, thinking, no doubt, it had got hold of the right thing at last, and wondering that all its exertions could get no milk out of it. It would persevere for a long time till at last it gave it up with despair and disgust, indicated generally by a very baby-like scream."

The little thing soon got familiar, and tweaked Mr. Wallace's beard most affectionately, bringing tears into his eyes with the excess of its demonstrations. He soon fed the little creature with a spoon, and made its food rather more solid. It would lick its lips, draw in its cheeks, and turn up its eyes in ecstacy when it received a spoonful that was peculiarly palateable.

"In order to give my infant," continues Mr. Wallace, "a little exercise and strengthen its limbs, I contrived a kind of ladder, upon which I put it to hang for a quarter of an hour at a time; but this was not much to its liking, as it could not get all four of its legs into convenient positions. It would hang for some time by two hands only, and then, suddenly leaving go with one, would cross it to the opposite shoulder to catch hold of its own hair, and thinking, no doubt, that that would support it much better than the stick, would leave hold with the other hand, and come tumbling down on to the floor, when it would immediately cross its arms and lie quite contented, for it never seemed hurt by any of its numerous tumbles. I then tried to make a kind of artificial mother for the little creature by wrapping up a piece of buffalo skin into a bundle with the long woolly hair outside, and hung it up about a foot from the ground. This suited it much better, as it could sprawl its legs and arms about wherever it liked, and always find some hair to catch hold of, which its little fingers grasped with the greatest tenacity. But the very success of this plan led to its speedy disuse; it was too natural, and the poor little creature, thinking it had recovered its mother, was continually trying to suck. It would pull itself up close by the strength of its arms, and try everywhere for a likely place, but only succeeded in getting mouthfuls of wool, when of course it would be greatly disgusted, screamed violently, and, if not rescued, would soon let itself fall. One day it got so much wool into its throat that I thought it would have been choked, but, after much gasping, it recovered, and this plan of giving it exercise had to be discontinued.

"After I had had it about a month, it began to exhibit some little signs of learning to run alone. When laid upon the floor it would push itself along by its legs or roll over, and thus make an unwieldy progression. When in its box it would lift itself up to the edge into almost an erect position, and once or twice succeeded in tumbling out.

15 AU 56

This day is published, post 8vo, price 5s.,

N the VARIATION of SPECIES, with especial reference to the INSECTA; followed by an Inquiry into the Nature of Genera.

By T. VERNON WOLLASTON, M.A., F.L.S.

"No compound of this earthly ball
Is like another, all in all."
TENNYSON.

JOHN VAN VOORST, 1, Paternoster Row.

NSECTA MADERENSIA; being an Account of the Insects of the Islands of the Madeiran Group.

By T. VERNON WOLLASTON, M.A., F.L.S.

4to, with 13 Coloured Plates of Beetles, price £2 2*s.*

JOHN VAN VOORST, 1, Paternoster Row.

OOD SPECIMENS of the following INSECTS for Sale at JAMES GARDNER'S, 52, High Holborn, London:— Daplidice, Hyale, Betulæ, C-album, Pruni, Dispar, Acis, Arion, Artaxerxes, thonia, Iris, Cassiope, Hero, Davus, Atropos, Nerii, Celerio, Lineata, Euphorbiæ, lii, Pinastri, Pulchella, Cribrum, Grammica, Quadra, Versicolor, Fagi, Cucullina, rmelita, Dromedarius, Trepida, Crenata, Curtula, Anachoreta, Anastomosis, Auricoma, ion, Rubiginea, Lychnitis, Asteris, Absinthii, Orichalcea, Fraxini, Leporina, ustraria, Alniaria, and a host of others too numerous to mention; together with an dless variety of Pocket Boxes, Setting Boards, and Houses.—Fly Nets of every descrip- n. Only maker of the Patent Umbrella Net for 7*s.* 6*d.*

J. G. has in a forward state a Cabinet of British Insects for the use of those gentle- en who have favoured him with their support.

To Ornithologists and Professional Naturalists.

Just Published, in one Folio Sheet, an entirely New Edition of the

OOLOGIST LIST of BIRDS observed in GREAT BRITAIN and IRELAND, to be used for Labels, and also to facilitate the Exchange of rds and Eggs: it is brought up to the end of 1854, contains Latin as well as English mes, and is arranged in accordance with the Second Edition of Yarrell's 'British rds.' Price 4d. *printed on one side only for Labels*, or 5d. *by Post.* Price 2d. printed both sides, or 3d. by Post.

London: EDWARD NEWMAN, Devonshire Street, Bishopsgate.

Now ready, price 3d. (or post free 4d), No. 5 of

MANUAL of BRITISH BUTTERFLIES and MOTHS.

By H. T. STAINTON, Editor of 'The Entomologist's Annual.'

This work will contain descriptions of all the British species, with popular readable tructions where to find how to know them, and will be illustrated with numerous od-cuts. To be completed in about Thirty Monthly Numbers.

London: JOHN VAN VOORST, Paternoster Row; and to be had of all Booksellers d News Agents.

CONTENTS.

Proceedings of Societies.—Entomological Society, 5153.

Origin of the name Horse-chestnut, *Rev. Alfred Charles Smith, M.A.*, 5157.

Quadrupeds.—Amours of the Hedgehog, *S. Stone, Esq.*, 5158.

Birds.—Occurrence of the Little Owl at Maidstone, *Whitmore Baker, Esq.*, 5159. Rare Birds procured in Norfolk and Suffolk; Remarkable Destruction of Sea Birds on the Norfolk Coast, *J. H. Gurney, Esq.*, 5159. Crossbill breeding in the North of England, *Thomas John Bold, Esq.*, 5159. Golden Oriole near Norwich; Note on the Broadbilled Sandpiper in Norfolk; Late Appearance of the Longtailed Duck and Common Scoter; Note on Savi's Warbler and on a variety of the Grasshopper Warbler, *H. Stevenson, Esq.*, 5160. Occurrence of the Black Stork in Kent, *Rev. R. N. Dennis*, 5160. Remarks on Anacharis Alsinastrum as a Food for Swans, and an obstruction to the Free Migration of Salmon, *John J. Briggs, Esq.*, 5161.

Fishes.—Further Results of the Artificial Breeding of Salmon at the Stormontfield Pond, 5163.

Insects.—Vanessa Antiopa; Melitæa Athalia, *Intelligencer*, 5164, 5165. Daplidice and Lathonia, *E. C. Buxton, Esq.*, 5165. Notodontæ not double-brooded, *E. Shepherd, Esq.*, 5165. Notodontæ not double-brooded, *Henry Doubleday, Esq.*, 5165. Note on the Geometrina, *R. F. Logan, Esq.*, 5166. Note on Dosithea circuitaria of Stainton's Annual, *Henry Doubleday, Esq.*, 5166. Occurrence of Platypteryx Sicula near Bristol, *P. H. Vaughan, Esq.*, 5166. Habit of Heusimene fimbriana; Elachista tæniatella, *Intelligencer*, 5167. Description of Coleophora Vitisella, a New Species of Tineina, *C. S. Gregson, Esq.*, 5167. Tinea biselliella; Nomada borealis, *Intelligencer*, 5167, 5168. Uncertain Dates of the Appearance of Insects: Suggestions for keeping a Record of such Dates, *C. R. Bree, Esq.*, 5168. On the Manner in which Vespa rufa builds its nest, *Frederick Smith, Esq.*, 5169. Hymenoptera obtained from dead Bramble-sticks, *W. H. L. Walcott, Esq.*, 5174. Notes on the Genus Haliplus, *John A. Power, M.D.*, 5174. Capture of a Coleopterous Genus new to the British Fauna, *T. Vernon Wollaston, Esq.*, 5178. Captures of Cryptocephalus and Agrilus biguttatus; Capture of Hydroporus Scalesianus near York; Ravages committed by Otiorhynchus scabrosus on the Hop, *Edward Newman*, 5178, 5179. Capture of Carabus intricatus in Devonshire, *J. J. Reading, Esq.*, 5179. Entomological Meeting at Reigate, 5180. Capture of Heliomanes Umbellatarum, *J. W. Douglas, Esq.*, 5180. Boxes for the transmission of Insects by Post, *Edward Newman*, 5180.

Radiata.—Occurrence in Britain of Edwardsia vestita, *W. Alford Lloyd, Esq.*, 5180. Occurrence of the Great Sea-cucumber at Banff, *Thomas Edward*, 5181. Note on a Sea-cucumber in Confinement, *W. Alford Lloyd, Esq.*, 5181.

Notices of New Books.—'Annals and Magazine of Natural History,' 5182.

EDWARD NEWMAN, PRINTER, 9, DEVONSHIRE STREET, BISHOPSGATE.